

BRIEF REPORT

Readiness for Change Predicts VA Mental Healthcare Utilization Among Iraq and Afghanistan War Veterans

Matthew Jakupcak,^{1,2} Katherine D. Hoerster,^{1,2} Rebecca K. Blais,^{1,3} Carol A. Malte,¹ Stephen Hunt,¹ and Karen Seal^{4,5}

¹VA Puget Sound Health Care System, Seattle Division, Seattle, Washington, USA

²Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine, Seattle, Washington, USA

³University of Utah, Department of Psychology, Salt Lake City, Utah, USA

⁴San Francisco VA Medical Center, San Francisco, California, USA

⁵Department of Medicine and Psychiatry, University of California-San Francisco, San Francisco, California, USA

Many veterans present to Veteran Affairs (VA) care intending to seek mental health treatment for symptoms of posttraumatic stress disorder (PTSD), depression, and/or alcohol misuse, yet most subsequently underutilize mental health care. This study examined the association of readiness for change with outpatient VA mental health care utilization in 104 treatment-seeking Iraq and Afghanistan war veterans who screened positive for PTSD, depression, and/or alcohol misuse at intake. Multivariate analyses demonstrated that readiness for change assessed at intake was positively associated (Incident Rate Ratio [IRR] = 1.22) with prospective outpatient mental health care utilization with demographic factors, military characteristics, and mental health burden in the model. Results suggest that interventions that target readiness to change, such as motivational interviewing, may improve treatment utilization in veterans presenting for mental health care.

Posttraumatic stress disorder (PTSD), depression, and alcohol abuse are prevalent and common comorbid conditions among veterans of Operations Enduring and Iraqi Freedom (OEF/OIF) enrolled in Veteran Affairs (VA) care (Seal et al., 2009). These conditions are associated with increased likelihood for violence and suicidality (Jakupcak et al., 2007, 2009) and risk for medical disease (Cohen, Marmar, Ren, Bertenthal, & Seal, 2009). Most OEF/OIF veterans reporting distress express an interest in receiving mental health care services (Sayer et al., 2010), yet the majority of those enrolled in VA care underutilize mental health services (Hoerster et al., 2012; Seal et al., 2010). Low utilization among veterans with self-identified need for mental health care represents missed opportunities to deliver effective treatments and prevent immediate and long-term negative outcomes.

Low mental health care utilization may be related to veterans' readiness for change. According to the transtheoretical model of change (Prochaska, DiClemente, & Norcross, 1992), readiness for change is represented across a continuum, from precontemplation (denial or minimization of a problem), contemplation (considering making change), action (actively engaged in change), and maintenance (efforts taken to maintain changes already made). Research has shown that increasing readiness for change predicts mental health treatment-retention (Brogan, Prochaska, & Prochaska, 1999), as well as treatment-response in patients with substance abuse (Bertholet, Cheng, Palfai, Samet, & Saitz, 2009) depression (Lewis et al., 2009), and PTSD (Murphy, Thompson, Murray, Rainey, & Uddo, 2009).

We are not aware of prior studies that have examined readiness for change in OEF/OIF veterans. Identifying modifiable factors that promote mental health care utilization in OEF/OIF veterans will inform targeted interventions and improve clinical outcomes. The purpose of this study was to evaluate self-reported readiness for change as a predictor of outpatient mental health care utilization in a sample of OEF/OIF veterans seeking treatment for self-identified mental health concerns. We hypothesized that greater readiness for change would predict greater outpatient mental health care utilization with mental health burden, demographic factors, and features of military service included in the model.

This material is the result of work supported by resources from the VA Puget Sound Health Care System, Seattle, Washington.

Correspondence concerning this article should be addressed to Matthew Jakupcak (S-116), Deployment Health Services, VA Puget Sound Health Care System, 1660 South Columbian Way, Seattle, WA 98108. E-mail: matthew.jakupcak@va.gov

Published 2013. This article is a US Government work and is in the public domain in the USA. View this article online at wileyonlinelibrary.com
DOI: 10.1002/jts.21768

Method

Participants and Procedure

The sample was drawn from 316 OEF/OIF veterans assessed at intake (January 2007 through August 2009) to a VA postdeployment health clinic offering collocated primary care, mental health, and social work services. We limited the sample to the 128 veterans who screened positive for PTSD, depression, and/or alcohol misuse and indicated they were seeking mental health care. Twelve percent (12.2%) did not report a racial status and were therefore classified as “Other” in the race category. Veterans missing data on self-reported readiness for change ($n = 6$) and/or outpatient mental health care utilization ($n = 17$) were excluded, as were cases missing data on other variables included in the modeling ($n = 7$). This yielded a final sample of 104 veterans. Average age was 29.9 years ($SD = 7.7$). Most veterans were male (94.1%), self-identified as White (61.5%), were unmarried/not cohabitating (62.4%), employed (58.7%), had at least some college (67.3%), and an annual income less than \$35,000 (61.1%). Most served in the Army (63.1%) and were deployed as Active Duty (76%).

As part of routine care, all veterans completed self-report intake questionnaires (described below). Outpatient mental health care utilization data were collected from the VA Northwest Veterans Integrated Service Network (VISN 20) Data Warehouse. The Institutional Review Board of VA Puget Sound Health-care System approved a waiver of consent to access aggregate clinical and utilization data for research.

Measures

Self-report questionnaires were used to assess reasons for seeking VA care and demographic characteristics (i.e., age, sex, race/ethnicity, relationship status, educational attainment, employment status, annual household income, and military branch). The PTSD Checklist-Military Version (PCL-M; Weathers, Litz, Herman, Huska, & Keane, 1993) was used to assess PTSD (range = 17–85). We used a global score of ≥ 34 to presume PTSD, a threshold sensitive for detecting PTSD, if present, among OEF/OIF veterans (Bliese et al., 2008). The Patient Health Questionnaire (PHQ; Spitzer, Kroenke, & Williams, 1999) was used to screen for depression via the 9-item depression subscale (PHQ-9; range = 0–27), and alcohol misuse via the PHQ alcohol abuse subscale (PHQ-5; range = 0–5). Per recommended scoring procedures (Spitzer et al., 1999), veterans who scored at least 5 on the PHQ-9 were coded as screening positive for depression and those who endorsed one or more item on the PHQ-5 were categorized as screening positive for alcohol misuse. Mental health burden was categorized according to comorbidity level (i.e., positive screen for one, two, or three mental conditions). Alpha coefficients for the PCL-M, the PHQ-9, and the PHQ-5 were .97, .92, and .91, respectively.

Readiness for change was assessed using the 32-item University of Rhode Island Change Assessment (URICA;

McConnaughy, Prochaska, & Velicer, 1983), which asks respondents to use a 5-point Likert scale to rate agreement to statements representing precontemplation (e.g., “As far as I’m concerned, I don’t have any problems that need changing”), contemplation (e.g., “I think I might be ready for some self-improvement”), action (e.g., “I am doing something about the problems that had been bothering me”), and maintenance (e.g., “I may need a boost right now to help me maintain the changes I’ve already made”). There is debate as to whether readiness for change is better conceptualized and assessed as a continuum versus discrete stages (e.g., DiClemente, Schlundt, & Gemmel, 2004). To be consistent with methods from several prior studies that used the URICA in those with PTSD (Hunt, Kyle, Coffey, Stasiewicz, & Schumacher, 2006; Murphy, et al., 2009; Rooney et al., 2007), we calculated global readiness for change as a continuum variable by averaging and summing items representing contemplation, action, and maintenance stages and subtracting the average of precontemplation items (range = -8 to $+32$).

The study outcome was a count variable representing total number of VISN 20 medical facility outpatient mental health visits (i.e., primary care-based or specialty mental health) 1-year postintake. Visits included outpatient psychiatry, individual, and group psychotherapy. Non-VA mental health services or VA Center visits were not included as these data were not available.

Data Analysis

We used negative binomial regression to identify factors significantly associated with number of mental health care visits at the level of $p < .05$ in bivariate analyses. To examine mental health comorbidity and demographic factors, we included significant variables in a multivariate model to examine the degree of association between readiness for change and number of mental health care visits following intake with these other factors in the model.

Results

The majority of veterans presenting for treatment screened positive for depression (92.3%) and/or PTSD (89.4%) and 26% screened positive for alcohol misuse; 14.4% screened positive for a single condition, 63.5% screened positive for two conditions, and 22.1% screened positive for all three conditions. Average scores for readiness for change was 8.8 ($SD = 2.1$).

All veterans in the sample attended a standard initial mental health intake. The average number of follow-up visits was 9.7 ($SD = 20.5$). The modal number of follow-up visits, however, was one and most (51.9%) attended three or fewer follow-up visits.

Table 1 shows univariate associations and results of the multivariate model. In the multivariate model veterans who screened positive for two mental health conditions attended more sessions than veterans who screened positive for one condition. Asian American/Pacific Islanders attended fewer visits than

Table 1
Bivariate and Multivariate Associations with Number of Mental Healthcare Visits One Year Postintake

Variable	<i>B</i>	<i>SE</i>	Wald	IRR	95% CI	<i>B</i>	<i>SE</i>	Wald	Adjusted IRR ^a	95% CI
Mental health conditions										
3 vs. 1	1.14	0.36	9.95**	3.11	[1.54, 6.31]	0.59	0.43	1.90	1.81	[0.78, 4.18]
2 vs. 1	0.88	0.32	7.83**	2.42	[1.30, 4.49]	0.73	0.34	4.60*	2.08	[1.07, 4.04]
2 vs. 3	-0.25	0.25	1.00	0.78	[0.47, 1.28]	0.29	0.31	0.89	1.34	[0.73, 2.49]
Readiness for change	0.19	0.05	13.60**	1.22	[1.10, 1.35]	0.13	0.05	6.26*	1.14	[1.03, 1.27]
Age	-0.01	0.01	0.52	0.99	[0.96, 1.02]	–	–	–	–	–
Male vs. female	0.21	0.44	0.22	1.23	[0.52, 2.92]	–	–	–	–	–
Race/ethnicity										
W vs. O	0.67	0.29	5.25*	1.95	[1.10, 3.45]	0.40	0.31	1.71	1.49	[0.81, 2.72]
AA vs. O	0.07	0.44	0.02	1.07	[0.45, 2.54]	0.16	0.48	0.11	1.18	[0.46, 3.02]
A/PI vs. O	-0.60	0.40	2.22	0.55	[0.25, 1.21]	-0.37	0.41	0.82	0.69	[0.31, 1.54]
AA vs. W	-1.26	0.33	14.70**	0.28	[0.15, 0.54]	-0.24	0.42	0.33	0.79	[0.35, 1.78]
A/PI vs. W	-0.60	0.38	2.52	0.55	[0.26, 1.15]	-0.77	0.36	4.66*	0.46	[0.23, 0.93]
A/PI vs. AA	-0.41	0.86	0.23	0.66	[0.12, 3.58]	-0.65	0.91	0.51	0.52	[0.09, 3.10]
Married vs. not	0.63	0.22	8.13**	1.87	[1.22, 2.88]	0.44	0.25	2.96	1.55	[0.39, 1.05]
Some college vs. no	0.10	0.22	0.22	1.11	[0.72, 1.71]	–	–	–	–	–
Employed vs. not	-0.47	0.21	5.08*	0.63	[0.41, 0.94]	-0.21	0.27	0.60*	0.81	[0.48, 1.38]
Annual household income										
≥ \$35k vs. \$0–\$24,999	0.18	0.25	0.52	1.19	[0.74, 1.93]	0.37	0.28	1.72	1.49	[0.83, 2.52]
\$25k–\$34,999 vs. \$0–\$24,999	0.63	0.26	5.80*	1.88	[1.12, 3.14]	0.43	0.30	2.15	1.54	[0.86, 2.76]
\$25,000–\$34,999 vs. ≥ \$35,000	0.48	0.29	2.71	1.61	[0.91–2.83]	0.06	0.36	0.03	1.07	[0.52, 2.17]
Military branch										
Marines vs. Army	0.24	0.30	0.63	1.27	[0.71, 2.28]	–	–	–	–	–
Navy vs. Army	0.06	0.27	0.04	1.06	[0.62, 1.81]	–	–	–	–	–
Air Force vs. Army	0.29	0.54	0.30	1.34	[0.47, 3.83]	–	–	–	–	–
Marines vs. Navy	0.18	0.36	0.25	1.20	[0.59, 2.43]	–	–	–	–	–
Marines vs. Air Force	-0.06	0.59	0.01	0.95	[0.30, 2.98]	–	–	–	–	–
Navy vs. Air Force	-0.24	0.57	0.17	0.79	[0.26, 2.43]	–	–	–	–	–
Active vs. Reserve	0.59	0.25	5.91*	1.82	[1.12, 2.95]	1.22	0.27	0.21	1.13	[0.67, 1.91]

Note. *n* = 104. IRR = Incidence Rate Ratio; CI = confidence interval; AA = African American; A/PI = Asian or Pacific Islander; O = Other; W = White.

^aAccounts for mental health comorbidity, readiness for change, race, employment status, relationship status, income, and Active/Reserve status.

p* < .05. *p* < .01.

Caucasian veterans and employed veterans attended fewer sessions than unemployed veterans. Readiness for change was independently and positively associated with number of mental health visits with burden, race, and employment status included in the model.

Discussion

The current findings suggest readiness for change, a modifiable patient-level factor, is associated with greater use of services in OEF/OIF veterans seeking VA mental health care. Despite self-reported need for mental health care, most veterans attended three or fewer visits in the year following intake. Low utilization of mental health care in younger adults, and especially young men, is common (Mackenzie, Gerkoski, & Knox, 2006). Elevated risks for violence, suicide, and medical disease

associated with mental health conditions in OEF/OIF veterans, however, underscore the importance of treatment-retention.

Fortunately, brief interventions, such as motivational interviewing, have been shown to increase readiness for change and improve treatment retention (Hettinga, Steele, & Miller, 2005). Recent findings from a randomized controlled trial suggest that motivational interviewing can be effectively implemented by telephone to increase use of mental health services among veterans with PTSD, depression, and alcohol misuse (Seal et al., in press). Motivational interviewing delivered at the initiation of treatment may also improve veterans’ response to cognitive behavioral therapies for PTSD (Rooney et al., 2007).

Study limitations include use of self-report measures to assess for mental disorders, which may be subject to respondent symptom inflation or minimization. We chose liberal cut-off scores on screening measures to classify mental health

conditions so as to include cases reporting mild-to-moderate symptom severity; adopting more stringent criteria would have changed our sample, and potentially the association between readiness for change and mental health care utilization. Because veterans were enrolled in VA and seeking mental health care, results may not generalize to still-active duty military or non-VA-enrolled veterans. We excluded distressed veterans disinterested in mental health care, as motivational enhancement for mental health care is often delivered by mental health care providers. However, future research should also examine readiness for change in distressed veterans who decline mental health care. We did not assess use of Vet Center or non-VA mental health care. Identified access barriers, such as travel distance to VA facilities (Seal et al., 2010), and response to mental health treatments, were not assessed.

Conclusion

Most OEF/OIF veterans presenting for VA mental health care services attend a limited number of visits. Those who report greater readiness for change attend a greater number of mental health visits in the year following intake. Motivational interviewing interventions implemented at entry into care may increase readiness for change and enhance use of needed mental health services.

References

- Bertholet, N., Cheng, D. M., Palfai, T. P., Samet, J. H., & Saitz, R. (2009). Does readiness to change predict subsequent alcohol consumption in medical inpatients with unhealthy alcohol use? *Addictive Behaviors, 34*, 636–340. doi:10.1016/j.addbeh.2009.03.034
- Bliese, P. D., Wright, K. M., Adler, A. B., Cabrera, O., Castro, C. A., & Hoge, C. W. (2008). Validating the primary care posttraumatic stress disorder screen and the posttraumatic stress disorder checklist with soldiers returning from combat. *Journal of Consulting and Clinical Psychology, 76*, 272–281. doi:10.1037/0022-006X.76.2.272
- Brogan, M. M., Prochaska, J. O., & Prochaska, J. M. (1999). Predicting termination and continuation status in psychotherapy using the transtheoretical model. *Psychotherapy, 36*, 105–113. doi:10.1037/h0087773
- Cohen, B. E., Marmar, C., Ren, L., Bertenthal, D., & Seal, K. H. (2009). Association of cardiovascular risk factors with mental health diagnoses in Iraq and Afghanistan war veterans using VA health care. *Journal of the American Medical Association, 302*, 489–492. doi:10.1001/jama.2009.1084
- DiClemente, C. C., Schlundt, D., & Gemmel, L. (2004). Readiness and stages of change in addiction treatment. *The American Journal Addictions, 13*, 103–119. doi:10.1080/10550490490435777
- Hoerster, K. D., Malte, C. A., Imel, Z. E., Ahmad, Z. S., Hunt, S., & Jakupcak, M. (2012). Association between perceived barriers and prospective VA mental healthcare use among Iraq and Afghanistan War veterans. *Psychiatric Services, 36*, 380–382. doi:10.1176/appi.ps.201100187
- Hettema, J., Steele, J., & Miller, W. R. (2005). *Motivational Interviewing. Annual Review of Clinical Psychology, 1*, 91–111. doi:10.1146/annurev.clinpsy.1.102803.143833
- Hunt, Y. M., Kyle, T. L., Coffey, S. F., Stasiewicz, P. R., & Schumacher, J. A. (2006). University of Rhode Island Change Assessment-Trauma: preliminary psychometric properties in an alcohol-dependent PTSD sample. *Journal of Traumatic Stress, 19*, 915–921. doi:10.1002/jts.20161
- Jakupcak, M., Cook, J., Imel, Z., Fontana, A., Rosenheck, R., & McFall, M. (2009). Posttraumatic stress disorder as a risk factor for suicidal ideation in Iraq and Afghanistan War veterans. *Journal Traumatic Stress, 22*, 303–306. doi:10.1002/jts.20423
- Jakupcak, M., Conybeare, D., Phelps, L., Hunt, S., Holmes, H. A., Felker, B., McFall, M. E. (2007). Anger, hostility, and aggression among Iraq and Afghanistan War veterans reporting PTSD and subthreshold PTSD. *Journal of Traumatic Stress, 20*, 945–954. doi:10.1002/jts.20258
- Lewis, C. C., Simons, A. D., Silva, S. G., Rohde, P., Small, D. M., Murakami, J. L., March, J. S. (2009). The role of readiness to change in response to treatment of adolescent depression. *Journal of Consulting and Clinical Psychology, 77*, 422–428. doi:10.1037/a0014154
- Mackenzie, C. S., Gerkoski, W. L., & Knox, V. J. (2006). Age, gender, and the underutilization of mental health services: The influence of help-seeking attitudes. *Aging & Mental Health, 10*, 574–582. doi:10.1080/13607860600641200
- McConaughy, E. N., Prochaska, J. O., & Velicer, W. F. (1983). Stages of change in psychotherapy: Measurement and sample profiles. *Psychotherapy: Theory, Research and Practice, 20*, 368–375. doi:10.1016/j.bbr.2011.03.031
- Murphy, R. T., Thompson, K. E., Murray, M., Rainey, Q., & Uddo, M. M. (2009). Effect of motivation enhancement intervention on veterans' engagement in PTSD treatment. *Psychological Services, 6*, 264–278. doi:10.1037/a0017577
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*, 1102–1114. doi:10.1037/0003-066X.47.9.1102
- Rooney, K., Hunt, C., Humphreys, L., Harding, D., Mullen, M., & Kearney, J. (2007). Prediction of outcome for veterans with post-traumatic stress disorder using constructs from the transtheoretical model of behaviour change. *Australian and New Zealand Journal of Psychiatry, 401*, 590–597. doi:10.1080/00048670701392825
- Sayer, N. A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., & Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA medical care. *Psychiatric Services, 61*, 589–597. doi:10.1176/appi.ps.61.6.589
- Seal, K. H., Maguen, S., Cohen, B., Gima, K. S., Metzler, T. J., Ren, L., Marmar, C. R. (2010). VA mental health services utilization in Iraq and Afghanistan veterans in the first year of receiving new mental health diagnoses. *Journal of Traumatic Stress, 23*, 5–16. doi:10.1002/jts.20493
- Seal, K. H., Metzler, T. J., Gima, K. S., Bertenthal, D., Maguen, S., & Marmar, C. R. (2009). Trends and risk factors for mental health diagnoses among Iraq and Afghanistan veterans using Department of Veterans Affairs health care, 2002–2008. *American Journal of Public Health, 99*, 1651–1658. doi:10.2105/AJPH.2008.150284
- Seal, K. H., Abadjian, L., McCamish, N., Shi, Y., Tarasovsky, G., & Weingardt, K. (2012). A randomized controlled trial of telephone motivational interviewing to enhance mental health treatment engagement in Iraq and Afghanistan veterans. *General Hospital Psychiatry, 34*, 450–459. doi:10.1016/j.genhosppsych.2012.04.007
- Spitzer, R. L., Kroenke, K., & Williams, J. W. (1999). Validation and utility of a self-report version of PRIME-MD: The PHQ Primary Care Study. *Journal of the American Medical Association, 282*, 1737–1744. doi:10.1001/jama.282.18.1737
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993, Oct.). *The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility*. Paper presented at the meeting of the International Society for Traumatic Stress Studies, San Antonio, TX.

Copyright of Journal of Traumatic Stress is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.